Docket: 1446

IN	THE UNITED STATES PATENT AND TRADEM	ARK OFFICE	
First Named Inventor:	John Snyder		
Application No.:	09/928,124	12.4	
Filing Date: E	August 10, 2001 A FABRICATION METHOD FOR A DEVICE FOR REGULATING FLOW OF ELECTRIC CURRENT WITH HIGH DIELECTRIC	Examiner:	L. Pham
Title:	CONSTANT GATE INSULATING LAYER AND SOURCE/DRAIN FORMING SCHOTTKY CONTACT OR SCHOTTKY- LIKE REGION WITH SUBSTRATE	Group Art Unit:	2814

TRANSMITTAL LETTER

Commissioner for Patents									
P.O. Box 1450									
Alexandria, VA	22313-1450								

I hereby certify that this document is being sent via First Class U.S. mail addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this day of _

Dear Sir:

The following documents are enclosed in connection with the above-referenced patent application:

- Information Disclosure Statement Under 37 CFR 1.97(c) (2 pages); 1.
- 2. Form PTO/SB/08A (6 pages, submitted in duplicate);
- Copies of 65 References Cited; 3.

Fee Determination (After Amendment of Claims) (1 page);

Check No. 956872 in the amount of \$180; and

Return Receipt Postcard.

Respectfully submitted,

DORSEY & WHITNEY LLP **Customer Number 25763**

Date: 6.23.03

on R. Kraus (Reg. No. 42,765) Intellectual Property Department Suite 1500, 50 South Sixth Street

Minneapolis, MN 55402-1498

(612) 340-5617

FEE DETERMINATION (After Amendment of Claims)

	Complete if Known
Application No.	09/928,124
Filing Date	August 10, 2001
First Named Inventor	John Snyder
Group Art Unit	2814
Examiner Name	L. Pham
Atty. Docket Number	14466

Claims as Amended in Response to Office Action dated: N/A

METHOD OF PAYMENT (Check One)		AMENDMENT FEE CALCULATION (Continued)			
1. The Commissioner is hereby authorized to charge indicated fee	s		3. ADDITIONAL FEES		
and credit any over payments to: Deposit Account No.: <u>04-1420</u> Deposit Account Name: <u>DORSEY & WHITNEY LLP</u>	Large Entity Fee	Small Entity Fee	Fee Description	Fee Paid	
Charge any additional fee required under 37 C.F.R. 1.16 and 1.17	110	55	Extension for reply within first month		
 ✓ Applicant claims small entity status (see 37 C.F.R. 1.27) ✓ Check Enclosed 	410	205	Extension for reply within second month		
AMENDMENT FEE CALCULATION	930	465	Extension for reply within third month		
- 1. EXTRA* CLAIM FEES Claims Highest . Fee	1,450	725	Extension for reply within fourth month		
 Remaining Number Present from Additional Fee after Previously Extra Below Amendment Paid for 	1,970	985	Extension for reply within fifth month		
Total = x =	1,300	650	Issue Fee-Utility/Reissue		
indep = x =	320	160	Notice of Appeal		
First Presentation of	320	160	Filing brief in support of appeal		
Multiple Dependent Claim x	280	140	Request for oral hearing		
Subtotal (1)	110	55	Terminal Disclaimer Fee		
i	110	55	Petition to revive - unavoidable		
*Calculation of Extra Claim Fees	1,300	650	Petition to revive – unintentional		
Large Small Fee Description	130	130	Petitions to the Commissioner		
Entity Entity Fee Description	180	180	Submission of IDS	\$180.00	
18 9 CO Claims in excess of 20	750	375	Request for Continued Examination (RCE)		
280 7140 Multiple dependent Claim	Other fee ((specify):			
Reissue independent claims over original patent Reissue claims in excess of 20 and over original patent			Subtotal (2)	\$180.00	
Reissue independent claims over original patent Reissue claims in excess of 20 and over original patent	A STATE OF THE STA		Total Amount of Payment:	\$180.00	

Submitted by:

CUSTOMER NUMBER

25763

DORSEY & WHITNEY LLP Intellectual Property Department 50 South Sixth Street, Suite 1500

Minneapolis, MN 55402-1498

Facsimile: (612) 340-8856 Telephone: (612) 340-5617 Reg. No.: 42,765 Name: Jason R. Kraus

Signature:



Docket: 14466

UNITED STATES PATENT AND TRADEMARK OFFICE

First Named

Inventor:

John Snyder

Application No.:

09/928,124

Filing Date:

August 10, 2001

Examiner:

L. Pham

A FABRICATION METHOD FOR A DEVICE

FOR REGULATING FLOW OF ELECTRIC

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Title:

CONSTANT GATE INSULATING LAYER

AND SOURCE/DRAIN FORMING

SCHOTTKY CONTACT OR SCHOTTKY-

LIKE REGION WITH SUBSTRATE

Group Art Unit:

2814

INFORMATION DISCLOSURE STATEMENT **UNDER 37 CFR § 1.97(c)**

Commissioner for Patents P. O. Box 1450 Alexandria, Virginia 22313-1450 I hereby certify that this document is being sent via First Class U.S. mail addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 23 _ day of June

KrisAnne Popovits

Dear Sir:

Pursuant to 37 CFR § 1.97(c), the references listed on the attached Form PTO/SB/08A (7 sheets, submitted in duplicate) are brought to the attention of the Examiner for consideration in connection with the examination of the above-identified patent application. Copies of the identified references are enclosed as necessary. This Information Disclosure Statement ("IDS") is filed on or before the mailing date of a final office action or a notice of allowance is accompanied by the fee set forth in 37 CFR § 1.17(p).

Payment of Fee Under 37 CFR § 1.17(p)

The fee under 37 CFR § 1.17(p), required for submission of an IDS under 37 CFR § 1.97(c), is enclosed, as referenced in the attached Fee Transmittal Sheet.

06/27/2003 WASDELR1 00000004 09928124

Application No.: 09/928,124 Docket No.: 14466

Pursuant to the Manual of Patent Examining Procedure, Chapter 609, Applicant requests that the Examiner consider each of the listed documents and initial and return to the undersigned a copy of the enclosed PTO/SB/08A (submitted in duplicate).

Respectfully submitted,

DORSEY & WHITNEY LLP Customer Number 25763

Date: 6.23.03

Jason R. Kraus

Reg. No. 42,765

Intellectual Property Department

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(612) 340-5617

PTO/SB/08A (10/01) (modified) U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO **Application Number** 09/928.124 **Filing Date** August 10, 2001 INFORMATION DISCLOSURE **First Named Inventor** John Snyder STATEMENT BY ARRIGEANT **Art Unit** 2814 (use as many sheets as necessary) L. Pham **Examiner Name** 6 **Sheet** 1 of **Attorney Docket Number** 14466 **U.S. PATENT DOCUMENTS** Pages, Columns, Lines, DOCUMENT NUMBER Cite **Publication Date** Name of Patentee or Where Relevant Passages or Initials No. MM-DD-YYYY Applicant of Cited Document Relevant Figures Appear Number - Kind Code (if known) 4,053,924 10-11-1977 Roman et al. US-4,300,152 11-10-1981 Lepselter US-7-17-1990 Konishi et al. 4,942,441 US-5,040,034 8-13-1991 Murakami et al. US-Ilderem et al. 5,079,182 1-7-1992 US-5,323,053 6-21-1994 Luryi et al. US-5,361,225 11-1-1994 Ozawa US-5,444,302 Nakajima et al. 8-22-1995 US-Welch 5,663,584 9-2-1997 US-5,760,449 6-2-1998 Welch US-Kizilyalli 5,767,557 6-16-1998 US-5,801,398 9-1-1998 Hebiguchi US-FOREIGN PATENT DOCUMENTS FOREIGN PATENT DOCUMENT TRANSLATION Country Number - Kind Code Pages, Columns, Lines, **Publication Date** Cite Name of Patentee or Where Relevant Passages Code: (if known) Initial No. MM-DD-YYYY Applicant of Cited Document or Relevant Figures Appear YES NO 0 603 102 A2 6-22-1994 \square PCT ~ WO 01/45157 A1 6-21-2001 П Ξ <u>></u>00 П **EXAMINER SIGNATURE DATE CONSIDERED** *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Sheet		2	of	6		Attorney Docket Number 14466							
				_	U.S. PAT	ENT	DOCUMENTS						
*Examiner Initials	Cite No.		UMENT N	UMBER le (if known)	Publication MM-DD-Y		Name of Patente Applicant of Cited Do	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear					
		US- 5,	883,010)	3-16-1999		Merrill et al.	· · · · · · · · · · · · · · · · · · ·					
		US- 6,	037,605	<u> </u>	3-14-2000		Yoshimura						
		US- 6,	160,282	2	12-12-2000	12-12-2000 Merrill							
		US- 6,	268,636	68,636 7-31-20			Welch	,					
		US- 6,	323,528		11-27-2001	i	Yamazaki et al.						
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		US- 6,	420,742		7-16-2002		Ahn et al.						
		US- 6,	509,609)	1-21-2003		Zhang et al.						
		US- 20	01/0024	4847 A1	9-27-2001		Snyder	 .					
		US- 20	02/0030	0231	3-14-2002		Okawa et al.						
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DATE CONSIDERED

EXAMINER SIGNATURE

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August 10, 2001

Substitute for form 1449A/PTO	3,		Application Number	09/928,124
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Filing Date

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

CAT & TRADE

First Named Inventor John Snyder **Art Unit** 2814 (use as many sheets as necessary) **Examiner Name** L. Pham 3 6 **Sheet** of **Attorney Docket Number** 14466

OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the TRANSI ATION item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue tnitials No. number(s), publisher, city and/or country where published YES NO LEPSELTER, M.P., SZE, S.M. SB-IGFET: An Insulated Gate Field Effect Transistor Using Schottky Barrier Contacts for Source and Drain. Proceedings of the IEEE, August 1968; pp. 1400-1402. П LEPSELTER, M.P., MACRAE, A.U., MACDONALD, R.W. SB-IGFET, II: An Ion Implanted IGFET Using Schottky Barriers. Proceedings of the IEEE, May 1969; pp. 812-813. KISAKI, Hitoshi. Tunnel Transistor. Proceedings of the IEEE, July 1973; pp. 1053-1054. П KOENEKE, C.J., SZE, S.M., LEVIN, R.M., KINSBRON, E. Schottky MOSFET for VLSI. IEDM, 1981; pp. 367-370. П SUGINO, M., AKERS, L.A., REBESCHINI, M.E. CMOS Latch-Up Elimination Using Schottky Barrier PMOS. IEDM, 1982; pp. 462-465. П KOENEKE, C.J., LYNCH, W.T. Lightly Doped Schottky MOSFET. IEDM, 1982; pp. 466-469. П MOCHIZUKI, T., WISE, K.D. An n-Channel MOSFET with Schottky Source and Drain. IEEE Electron Device Letters, EDL-5, No. 4, April 1984; pp. 108-111. OH, C.S., KOH, Y.H., KIM, C.K. A New P-Channel MOSFET Structure with Schottky Clamped Source and Drain, IEDM, 1984; pp. 609-612. SWIRHUN, Stanley E., et al. A VLSI Suitable Schottky Barrier CMOS Process. IEEE Transactions on Electron Devices, ED-32, No. 2, February 1985; pp. 194-202. TOYE, P.A., BOHLIN, K., MASSZI, F., NORDE, H., NYLANDER, J., TIREN, T., MAGNUSSON, U. Complementary Si MESFET Concept Using Silicon-on-Sapphire Technology. IEEE Electron Device \Box Letters, Vol. 9, No. 1, January 1988; pp. 47-49. TOSE, P.A., BOHLIN, K.E., NORDE, H., MAGNUSSON, U., TIREN, J., SODERBARG, A., ROSLING, M., ASSZI, F., NYANDER, J. Silicon IC Technology Using Complementory MESFETs. Solid State Devices, Elsevier Science Publishers (North Holland), 1988; pp. 607-609.

EXAMINER SIGNATURE

DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PTO/SB/08A (10/01) (modified)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitu	Substitute for form 1449A/PTO		App	lication Number	09/928,124	_					
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT					First	Named Inventor	John Snyder				
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Sheet		4		of	6		Atto	rney Docket Number	14466		
			OTH	IER (OOCUM	ENTS - NON	I-PAT	ENT LITERATURE	DOCUMENTS		
*Examiner	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue									TRANS	LATION
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	•		HATTORI, Reiji, SHIRAFUJI, Junji. <u>Numerical Simulation of Tunnel Effect Transistors.</u> <i>Japan J. Appl. Phys.,</i> Vol. 33, 1994; pp. 612-618.								
			TUCKER, J.R., WANG, C., LYDING, J.W., SHEN, T.C., ABELN, G.C. Nanometer Scale MOSFETs and STM Patterning on Si. SSDM 1994, August 1994; pp. 322-324.								
								Field-Effect Transistor Ba 994; pp. 618-620.	sed on Quantum Tunneling.		
						SUDATE, Tadashi o. 10, October 19			l Transistor. IEEE Electron		
_	• • •		SNYDER, John P., HELMS, C.R., NISHI, Yoshio. <u>Experimental Investigation of a PtSi Source and Drain Field Emission Transistor</u> . <i>Applied Physics Letters</i> , Vol. 67, No. 10, 4 September 1995; pp. 1420-1422.								
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PTO/SB/08A (10/01) (modified) U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Substitute for form 1449A/PTO Application Number 09/928.124 August 10, 2001 **Filing Date** INFORMATION DISCLOSURE **First Named Inventor** John Snyder STATEMENT BY APPLICANT 2814 Art Unit (use as many sheets as necessary) L. Pham JUN 2 6 2003 **Examiner Name Sheet** 5 of **Attorney Docket Number** 14466 OTHER DOCUMENTS - NON-PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the TRANSLATION Cite item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published VES NO WANG, C., SNYDER, John P., TUCKER, J.R. Sub-50nm PtSi Schottky Source/Drain p-MOSFETs. 56th Annual Device Research Conference Digest, June 1998, pp. 72-73. \Box ZHAO, Q.T., KLINKHAMMER, F., DOLLE, M., KAPPIUS, L., MANTL, S. Nanometer Patterning of Epitaxial CoSi2/Si(100) for Ultrashort Channel Schottky Barrier Metal-Oxide-Semiconductor Field Effect Transistors. Applied Physics Letters, Vol. 74, No. 3, 18 January 1999; pp. 454-456. WANG, C., SNYDER, John P., TUCKER, J.R. Sub-40nm PtSi Schottky Source-Drain Metal-Oxide-Semiconductor Field-Effect-Transistors. Applied Physics Letters, Vol. 74, No. 8, 22 February 1999; pp. П 1174-1176. SNYDER, John P., HOLMS, C.R., NISHI, Yoshio. Analysis of the Potential Distribution in the Channel Region of a Platinum Silicided Source/Drain Metal Oxide Semiconductor Field Effect Transistor. Applied Physics Letters, Vol. 74, No. 22, 31 May 1999; pp. 3407-3409. SAITOH, W., YAMAGAMI, S., ITOH, A., ASADA, M. <u>35nm Metal Gate SOI-p-MOSFETs with PtSi Schottky Source/Drain.</u> *57th Annual Device Research Conference Digest*, June 1999; pp. 30-31. П TUCKER, J.R. Schottky Barrier MOSFETs for Silicon Nano-electronics. IEEE Frontiers in Electronics, January 1997; pp. 97-100. APLANTE, Philip A. (Editer-in-Chief). Comprehensive Dictionary of Electrical Engineering. IEEE Press, 정999, page 97. MULLER, Richard S. and KAMINS, Theodore I. Device Electronics for Integrated Circuit. John Wiley & Sons, Second Edition, 1977, 1986, pp. 448, 505-511. П 멜ERRET. Modular Series On Solid State Devices, vol. I Semiconductor Fundamentals, Addison-Wesly, 1983; pp. 29-33. NEUDECK, Gerold W. Volume II: The PN Junction Diode, Modular Series On Solid State Devices. ddison-Wesley, 1983; pp. 8-10.

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On-line Encyclopedia Britannica, 2001, definition of "rare-earth element.", date not established; 2 pages.

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PTO/SB/08A (10/01) (modified)
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STATEMENT BY APPLICANT (use as many sheets as necessary)						Art Unit	2814	814		
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Sheet		6		of	6		Attorney Docket Number	14466		
			ОТ	HER	DOCUMEN	ITS - NON	I-PATENT LITERATURE	DOCUMENTS		
*Examiner	Cite		I				LETTERS), title of the article (when a symposium, catalog, etc.), date, page		TRANS	LATION
Initials	No.			цет			er, city and/or country where published		YES	NO
			SZE, S.N	√l. Phy	sics of Semicor	nductor Devic	es, John Wiley & Sons, Second	Edition, 1981; pp. 293-294.		
			Subthres Microstre	shold ar uctures	nd scaling of Pt , Vol. 28, No. 5	Si Schottky b /6; pp. 501-50		ic Press, Superlattices and		
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		2	KEBZIERSKI, J., XUAN, P., SUBRAMANIAN, V., BOKOR, J., KING, T-J., HU, C., ANDERSON, E. A 20 nn atte-length ultra-thin body p-MOSFET with silicide source/drain. Superlattices and Microstructures, Vol. 28, No. 5/6, 2000, pp. 445-452.							
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